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THE PAIN CENTER

Operative Report

Name of Patient: Dianna Berry

Date of Operation: 6-3-05

Surgeon: Dr. Kauffman

Area of Surgery: Transverse process of C3 on the right, to the unmyelinated sensory terminal nerve endings (sprouts) of the C3 nerve root and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the cervical sympathetic ganglion in the insertions of the levator scapula, inter traverse posteriores cervicis, rotaries cervicis and splenius cervicis muscles.

Total # of Procedures: 8

Total # of Lesions: 8

Fluoroscopic evaluation: 8 views

Length of Cannula: 5 cm

Anesthesia: Marcaine 0.5%, 5 cc

Medical History: Dianna reports that her worst pain is in her lower back, hip, jaw, ears, neck, and shoulder. The pain is described as constant and pulsating. The pain starts in her neck and radiates to her head. The pain occurs when she wakes up, sitting, reading, and while sleeping. Dianna gets headaches 2 times a week, they are in the back of her head on the right. Her jaw pain occurs also when she eats, yawn, swallow, and chew. She has pain in her neck when she raises her arms and lifts anything.

Dianna's lower back pain and hip pain hurt the most when she bends down or twist. When the pain starts in her back then radiating to her hip and leg. Dianna has had these areas of pain for 6 years.

Dianna was seen by Dr. Santelli, chiropractor and Dr. Heine, MD. She had a MRI done of her neck and shoulder, results are unknown.



Completed Jul-05

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Pre-operative interview: Dianna was interviewed and the procedure was re-explained. An update of the original chief complaints of the patient were: right neck pain 3 out of 10 (intermittent), and right upper trapezius (intermittent). Dianna reported that the prior radiofrequency procedure reduced her right blume pain. Patient follows sleeping position.

The most prominent area of tenderness that correlated with the existing chief complaints was determined during the palpation examination and selected. A fluoroscopic picture demonstrated that the tender area was the region of the transverse process of C3 on the right. A prognostic block at the transverse process of C3 on the right was performed under fluoroscopic guidance with a limited volume of anesthetic solution, 1 cc, to prevent the masking of any surrounding structures. The prognostic block performed at the transverse process of C3 on the right decreased the right neck pain from a 3 out of 10 to a 0 out of 10, and the upper trapezius is a 2 out of 0. Evaluation of the appropriate indications for surgery was completed by the comprehensive relief of associated pain patterns confirming the success of the prognostic block.

Pre-operative Diagnosis:

(1) Neuropathy of the unmyelinated sensory terminal nerve endings (sprouts) of the branches of the C3 nerve root on the right, C3 transverse process, and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the cervical sympathetic ganglion in the insertions of the levator scapula, inter traverse posteriores cervicis, rotaries cervicis and splenius cervicis muscles.

Post-operative Diagnosis:

(1) Neuropathy of the unmyelinated sensory terminal nerve endings (sprouts) of the branches of the C3 nerve root on the right, C3 transverse process, and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the cervical sympathetic ganglion in the insertions of the levator scapula, inter traverse posteriores cervicis, rotaries cervicis and splenius cervicis muscles.

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Operation: Transection of the unmyelinated sensory terminal nerve endings (sprouts) of the branches of the C3 nerve root on the right C3 transverse process, and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the cervical sympathetic ganglion in the insertions of the levator scapula, inter traverse posteriores cervicis, rotaries cervicis and splenius cervicis muscles. Using an RFG-8 radiofrequency generator with an SMK-TC (5) thermocouple electrode.

Description of Procedure:

The head was prepped and draped in the normal fashion for this type of procedure.

1.0 cc of 5% marcaine solution was injected into the tissue with the point of the needle being held in contact with the bone and periosteum. An SMK-C (5) 5 cm insulated cannula with 4mm working end was then inserted into the tissue until it was in contact with the bone at the site of the terminal end of the dorsal surface of the articular pillar of the transverse process of C3 on the right with the solid stylet in place. The solid stylet was removed from the SMK-C (5) insulated cannula and an SMK-TC (5) thermocouple electrode was inserted in its place. The position of the tip of the cannula and the electrode was evaluated under fluoroscopy. The position of the tip was found to be in the desired place to perform the intended cautery. The RFG-8 radiofrequency generator was turned on and the mode selector knob was set on stim mode. The output lever switch was turned on. The frequency was set at 2 Hertz. The stimulation voltage knob was slowly advanced to 2 1/2 volts. Attention was directed to see if any motor nerves were being stimulated, which is manifested by twitching muscles in that area. Close observation revealed no reaction. The voltage stimulation knob was returned to zero. The output lever switch was turned off. The mode selector knob was turned to lesion. The output lever switch was again turned on. The RF power knob was slowly advanced until the temperature reached 80 degrees centigrade for 60 seconds. The RF power knob was returned to zero. The output lever switch was turned off. The mode selector switch was turned off.

The entire procedure was performed 8 times. Each time the SMK-TC (5) thermocouple electrode and the SMK-C (5) insulated cannula were withdrawn, reinserted and redirected into an unrelated tissue track to independently create another lesion. Reevaluation by fluoroscopy and stimulation to determine that

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the new location was appropriate and distinctly different from any prior lesion placement. The 8 lesions were arranged in two rows on the dorsal surface of the lamina in the region of the articular pillar of the transverse process, parallel to the junction of the dorsal and lateral surfaces of the lamina, with even distribution while in contact with the osseous surface for the purpose of pain reception ablation of the unmyelinated sensory terminal nerve endings (sprouts) of the C3 nerve root and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the cervical sympathetic ganglion in the insertions of the levator scapula, inter traverse posteriores cervicis, rotaries cervicis and splenius cervicis muscles. A total of 8 procedures were performed on the right terminal aspect of the transverse process of the C3 vertebra.

An RFG 8 Radionics generator, with a continuous revolving clock face 60 second timer, was utilized. When the 80 degree C lesion temperature was achieved, the position of the second hand was noted, and the temperature was held for one complete minute. The starting times were recorded and documented in the patient's records. The rise of the thermotrol to an 80 degree temperature was achieved in a gradual manner, usually taking 5-10 seconds. Allowing for the different starting times due to the use of the continuous revolving clock face 60 second timer, the differences in time of each lesion production at various sites, pain elicitation, patient movement, operator observance and monitoring of treatment protocol, the starting times may vary from lesion to lesion. They starting times of the 60 second cycles for each lesion are as follows:

- | | |
|-------|-------|
| 1. 15 | 6. 5 |
| 2. 25 | 7. 15 |
| 3. 35 | 8. 25 |
| 4. 45 | |
| 5. 55 | |

RFS

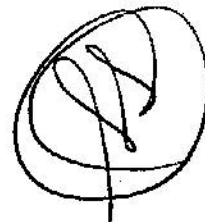
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Surgical Completion

Dianna was given an appropriate review of post-operative instructions, including administration of pain and antibiotic medication, application of cold pak, and additional directions regarding observance of any untoward reactions (fever, bleeding, excessive swelling) from surgery with advisement to call immediately. All muscles were functioning normally and the patient was dismissed. Dianna has a scheduled future appointment with The Pain Center.

TPC/kd



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6-3-05

Re: Dianna Berry

To whom it may concern:

I have thoroughly read and reviewed all prior reports and treatment records of this patient that are presently available. Dianna presents today with a complaint of right neck pain and right upper trapezius. She states that the pain in the right side of her neck is a 3 out of 10, and the pain in her right upper trapezius is a 2 out of 10. Her last RFS was to the right blume. Today, we elected to treat her right neck pain and the right upper trapezius.

The procedure for performing diagnostic blocks as well as the radiofrequency therapy itself, alternative therapies and possible complications were discussed with the patient. Then, Dianna agreed to undergo a prognostic block. The most tender area was found to be the right C3 articular pillar. The skin over this area was anesthetized with a skin wheel of half-percent Marcaine. A 25-gauge needle was advanced through the skin wheel, through the tissue, under fluoroscopic examination in this area. One cc of half-percent Marcaine was deposited, and within 3 minutes of the placement of this local anesthetic, Dianna expressed that the pain in her neck decreased from a 3 out of 10 to a 0 out of 10, and that the pain in her trapezius decreased from a 2 out of 10 to a 0 out of 10.

This response is interpreted as a significant response to the placement of the local anesthetic. It is also concluded that an injury in that area is the cause of either all or some of the pain that the patient was complaining about. That response is certainly consistent with the ingrowth of nerve endings also known as sprout formation which was described by Wayne B. Leadbetter, MD, in the Journal Clinics In Sports Medicine, volume 11 #3 of July 1992. Such nerve ingrowth was also described by AJ Freemont, et al, in The Lancet Journal, volume 350 pages 198-181 in 1997. Tendon and ligament insertion injuries have been described as a source of possible musculoskeletal pain by Peter D. Palesy in the Journal Of Cranial Mandibular Practice, volume 15 #3 of July 1997.

Therefore, the radiofrequency procedure was recommended to Dianna, who did consent to undergo such therapy. Utilizing 5 cc of half-percent Marcaine, 8

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radiofrequency lesions were produced in the manner described earlier by Horst Blume, et al.

Dianna tolerated this procedure well, with the plan to return in one week's time for further evaluation. I concur that the diagnosis of muscle injury is triggering the pain. The previous radiofrequency procedures have successfully reduced pain and it has been determined that it is appropriate to continue with the same treatment plan.

Thank you,

Dr. Stuart Kauffman

Dictated not read
SK/kd



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Operative Report

Name of Patient: Dianna Berry

Date of Operation: 6-7-05

Surgeon: Dr. Stuart Kauffman

Time Started: 9:30am

Time Completed: 10:30am

Area of Surgery: The most lateral aspect of the 3rd rib on the left, the unmyelinated sensory terminal nerve endings (sprouts) of the lateral branches of the T3 nerve root and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the thoracic sympathetic ganglion in the Lateral iliocostalis cervicis and thoracic musculotendinous insertions in line with the medial border of the scapula region.

Total # of Procedures: 8

Total # of Lesions: 8

Fluoroscopic evaluation: 8 views

Length of Cannula: 5 cm

Anesthesia: Marcaine 0.5%, 5 cc

Medical History: Dianna reports that her worst pain is in her lower back, hip, jaw, ears, neck, and shoulder. The pain is described as constant and pulsating. The pain starts in her neck and radiates to her head. The pain occurs when she wakes up, sitting, reading, and while sleeping. Dianna gets headaches 2 times a week, they are in the back of her head on the right. Her jaw pain occurs also when she eats, yawn, swallow, and chew. She has pain in her neck when she raises her arms and lifts anything.

Dianna's lower back pain and hip pain hurt the most when she bends down or twist. When the pain starts in her back then radiating to her hip and leg. Dianna has had these areas of pain for 6 years.

Dianna was seen by Dr. Santelli, chiropractor and Dr. Heine, MD. She had a MRI done of her neck and shoulder, results are unknown.


Completed Jul-05

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Pre-operative interview: Dianna was interviewed and the procedure was re-explained. An update of the original chief complaints of the patient were: left neck pain (stiffness) 4 out of 10, and left shoulder pain (stiffness) 4 out of 10. Patient reports neck stiffness caused shoulder pain.

The most prominent area of tenderness that correlated with the existing chief complaints was determined during the palpation examination and selected. A fluoroscopic picture demonstrated that the tender area was the region of the Lateral iliocostalis cervicis and thoracic musculotendinous insertions in line with the medial border of the scapula region on the 3rd rib on the left. A prognostic block was performed under fluoroscopic guidance with a limited volume of anesthetic solution, 1 cc, to prevent the masking of any surrounding structures. The prognostic block performed at the 3rd rib on the left Lateral in line with the medial border of the scapula region decreased the left shoulder pain from 4 out of 10 to a 1 out of 10, left upper trapezius pain from 4 out of 10 to a 1 out of 10. Evaluation of the appropriate indications for surgery was completed by the comprehensive relief of associated pain patterns confirming the success of the prognostic block.

Pre-operative Diagnosis:

- (1) Neuropathy of the unmyelinated sensory terminal nerve endings (sprouts) of the lateral branches of the T3 nerve root on the left, and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the thoracic sympathetic ganglion in the Lateral iliocostalis cervicis and thoracic musculotendinous insertions at the 3rd rib.

Post-operative Diagnosis:

- (1) Neuropathy of the unmyelinated sensory terminal nerve endings (sprouts) of the lateral branches of the T3 nerve root on the left, and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the thoracic sympathetic ganglion in the Lateral iliocostalis cervicis and thoracic musculotendinous insertions at the 3rd rib.

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Operation: Transection of the unmyelinated sensory terminal nerve endings of the lateral branches of the T3 nerve root on the 3rd rib on the left, and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the thoracic sympathetic ganglion in the insertions of the Lateral iliocostalis cervicis and thoracic musculotendinous insertions at the 3rd rib using a RFG-8 radiofrequency generator with a SMK-TC thermocouple electrode.

Description of procedure:

The surgical area was prepped and draped in the normal fashion for this type of procedure.

1.0 cc of 5% marcaine solution was injected into the tissue with the point of the needle being held in contact with the bone and periosteum. An SMK-C (5) 5 cm insulated cannula with 4mm working end was then inserted into the tissue until it was in contact with the bone, Lateral in line with the medial border of the scapula region at the 3rd rib on the left with the solid stylet in place. The solid stylet was removed from the SMK-C (5) insulated cannula and an SMK-TC (5) thermocouple electrode was inserted in its place. The position of the tip of the cannula and the electrode was evaluated under fluoroscopy. The position of the tip was found to be in the desired place to perform the intended cautery. The RFG-8 radiofrequency generator was turned on and the mode selector knob was set on stim mode. The output lever switch was turned on. The frequency was set at 2 Hertz. The stimulation voltage knob was slowly advanced to 2 1/2 volts. Attention was directed to see if any motor nerves were being stimulated, which is manifested by twitching muscles in that area. Close observation revealed no reaction. The voltage stimulation knob was returned to zero. The output lever switch was turned off. The mode selector knob was turned to lesion. The output lever switch was again turned on. The RF power knob was slowly advanced until the temperature reached 80 degrees centigrade for 60 seconds. The RF power knob was returned to zero. The output lever switch was turned off.

The entire procedure was performed 8 times. Each time the SMK-TC thermocouple electrode and the SMK-C insulated cannula were withdrawn, reinserted and redirected into an unrelated tissue track to independently create another lesion. Reevaluation by fluoroscopy and stimulation to determine that the new location was appropriate and distinctly different from any prior lesion placement. The 8 lesions were arranged in a linear alignment to create a

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horizontal row, medial and lateral to the guide needle, with even distribution while in contact with the osseous surface for the purpose of pain reception ablation of the unmyelinated sensory terminal nerve endings (sprouts) of the terminal lateral branches of the T3 nerve root and the bilateral sympathetic terminal nerve endings (sprouts) of the branches of the thoracic sympathetic ganglion in the Lateral iliocostalis cervicis and thoracic musculotendinous insertions in line with the medial border of the scapula region on the 3rd rib on the left. A total of 8 procedures were performed on the posterior aspect of the 3rd rib.

An RFG 8 Radionics generator, with a continuous revolving clock face 60 second timer, was utilized. When the 80 degree C lesion temperature was achieved, the position of the second hand was noted, and the temperature was held for one complete minute. The starting times were recorded and documented in the patient's records. The rise of the thermotrol to an 80 degree temperature was achieved in a gradual manner, usually taking 5-10 seconds. Allowing for the different starting times due to the use of the continuous revolving clock face 60 second timer, the differences in time of each lesion production at various sites, pain elicitation, patient movement, operator observance and monitoring of treatment protocol, the starting times may vary from lesion to lesion. They starting times of the 60 second cycles for each lesion are as follows:

1. 0	6. 50
2. 15	7. 0
3. 25	8. 15
4. 35	
5. 40	

RADIOFREQUENCY
RFS

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Surgical Completion

Dianna was given an appropriate review of post-operative instructions, including administration of pain and antibiotic medication, application of cold pak, and additional directions regarding observance of any untoward reactions (fever, bleeding, excessive swelling) from surgery with advisement to call immediately. All muscles were functioning normally, special care was taken to evaluate the patient's breathing, and the patient was dismissed. Dianna has a scheduled future appointment with The Pain Center.

TPC/ss